

Paper Id: Roll No:

B. TECH.
(SEM-I) THEORY EXAMINATION 2019-20
COMPUTER SYSTEM AND PROGRAMMING IN C

Time: 3 Hours

Total Marks: 100

Note Attempt sections in sequence in any order at the end of the examination.

SECTION A

1. Attempt all questions briefly. 2 x 10 = 20

- a. How does syntax error differ from logical error? Give proper example.
- b. Explain different characteristics of algorithm.
- c. Differentiate between break and continue.
- d. Describe explicit type conversion with help of example.
- e. Why we use do while loop in c? Also tell any properties which you know.
- f. Distinguish between actual and formal arguments.
- g. What are the merits and demerits of an array in C?
- h. What are enumerated data types in C? Explain
- i. Describe macro with help of an example.
- j. Explain the difference between malloc and calloc.

SECTION B

2. Attempt any three of the following: 10x3=30

- a. What do you mean by storage class? Define the various storage classes in C. Explain each with suitable example.
- b. What is case control structure in C? What is the reason for using break statement at the end of each case in case control block? Explain with help of example.
- c. what do you mean by parameter passing? Discuss various parameters passing mechanism in C with examples.
- d. What do you mean by sorting? Write a program in C to sort 10 numbers using bubble sort.
- e. What are pointers? Why are they required? How do you declare and initialize them? Write a program to read two integers 'x' and 'y' and double the contents of the two variables 'x' and 'y' using pointers.

SECTION C

3. Attempt any one part of the following: 10x1=10

- a. Differentiate:
 - (i) Compiler vs Interpreter
 - (ii) Local variable vs Global variable
 - (iii) High level language vs low level language
- b. Describe various components of digital computer with a neat block diagram.

4. Attempt any one part of the following: 10x1=10

- a. Write a program to read a number having more than 5 digits and print whether the given number is divisible by 11 or not by using the algorithm which states that a number is divisible by 11 if and only if the difference of the sums of the digits at odd positions and even positions is either zero or divisible by 11.
- b. What are different types of function in C? write a function that prints absolute value of a given number and prints whether number is even or odd.

Paper Id: Roll No: **5. Attempt any one part of the following: 10x1=10**

- a. What do you mean by operator precedence and associativity? Write a program in C to understand the working of bitwise and conditional operators.
- b. The marks obtained by a student in 5 different subjects are input through keyboard. The student gets a division as per the following rules:

Percentage ≥ 60 – First Division

Percentage greater than or equal to 50 and less than 60 – Second division

Percentage greater than or equal to 40 and less than 49 – Third division

Percentage less than 40 – Fail

Draw a flow chart and Write a program to calculate the division obtained by the student.

6. Attempt any one part of the following: 10x1=10

- a. What do you mean by two-dimensional array? Write a program for multiplication of two matrices of size 3 X 3 using functions.
- b. List the differences between 'structure' and 'union'. Write a simple database program in C that stores the book details such as Title, book-id, page count, price and publication for 100 books.

7. Attempt any one part of the following: 10x1=10

- a. What do you understand by dynamic memory allocation? What are various functions related to dynamic memory allocations? Explain with proper syntax.
- b. What are various file handling functions? Write a program in C to copy contents of a file in another file.